

Reynolds (D.S.)

RECENT IMPROVEMENTS

IN

OPHTHALMIC SURGERY.

✓
By D. S. REYNOLDS, M. D.

READ BEFORE THE

KENTUCKY STATE MEDICAL SOCIETY,

APRIL, 1873.



LOUISVILLE:

PRINTED BY JOHN P. MORTON AND COMPANY.

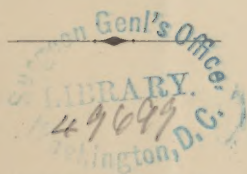
1873.

RECENT IMPROVEMENTS
IN
OPHTHALMIC SURGERY.

✓
BY D. S. REYNOLDS, M. D.

READ BEFORE THE
KENTUCKY STATE MEDICAL SOCIETY,

APRIL, 1873.



LOUISVILLE:

PRINTED BY JOHN P. MORTON AND COMPANY.

1873.

RECENT IMPROVEMENTS IN OPHTHALMIC SURGERY.

STRABISMUS.

The subject of strabismus, though much written and talked about for a long time, has but recently been assigned a place among the well-understood affections of the eye. Since the laws of accommodation and refraction have been pretty definitely settled, it has been ascertained that squint is almost uniformly the result of abnormal relations between the refracting media and the retina, and that as an almost invariable rule the cause of these abnormal relations is asymmetry or faulty development of the eye-ball—*i. e.*, too short an antero-posterior diameter—causing, first, hypermetropia; second, convergence of the visual axes—convergent squint; or too great an antero-posterior diameter of the globe—causing, first, myopia; second, divergence of the visual axes, and when of long duration permanent divergent squint. Convergent squint is brought about by the powerful strain upon the accommodative apparatus in the attempt to so shorten the focal length of the crystalline lens as to unite divergent rays of light in the bacillar layer of the retina. In viewing near objects tension of the accommodation is necessarily coincident with convergence of the visual axes in persons possessing binocular vision; consequently this habitual straining of the internal recti muscles develops permanent contraction. In myopia due to congenital malformation of the eye-ball divergence of the visual

axes results from the absence of any necessity for active accommodative efforts, in consequence of which the internal recti muscles are never actively exercised, and finally, becoming atonic, they are overbalanced by the external recti, thus producing permanent divergent squint.

Convergent squint means hypermetropia with muscular contraction; divergent squint means myopia with muscular atony. Donders asserts that seventy-seven per cent. of the cases of convergent squint are due to the causes above stated, and recent observations have fully confirmed the assertion of this important fact by the great master. The probable result of an operation can be accurately determined by testing the state of the patient's vision; for example, if the squint be not due to an anomalous state of the refraction and accommodation, an operation will very probably be unsuccessful, and especially so if the squint be due to paresis. The result will be doubtful also in cases unattended with binocular vision. If, when the defective refraction be corrected by glasses, the squint disappears, or nearly so, the case may be cured without operation. In convergent squint due to paralysis of the external recti no operation should be attempted until the disease causing the squint shall have been arrested in its progress, and found irremediable as to the restoration of the functions of the palsied muscle or muscles.

Incipient convergent squint may generally be cured by neutralizing the hypermetropia with proper glasses, paralyzing the accommodation with atropia drops, and exercising the externi with prismatic glasses.

Divergent squint in ninety per cent. of the cases (Donders) results from augmented antero-posterior diameter of the eyeball—myopia—and depends upon insufficiency of the internal recti muscles. Operative interference is much more rarely required for the cure of this form of squint than the convergent. The majority perhaps of the cases seeking professional advice may be relieved by neutralizing the myopia,

occasionally exercising the interni with prisms and toning up the accommodation with a collyrium of the calabar bean.

Divergent squint due to palsy should *very rarely if ever* be operated upon. That other form—unfortunately not as rare as it should be—produced by an unskillfully-executed operation for convergent squint, may be relieved by an operation devised by Prof. C. R. Agnew. The operation consists in bringing the interni forward on the scleral surface sufficiently far to correct the divergence. To do this it is necessary at the same time to divide the tendinous attachments of the opposing muscles and secure the advanced tendons of the interni in their new situation by the aid of sutures. (See New York Medical Journal, July, 1867, p. 317.)

Before dismissing the subject of squint I desire to lay particular stress upon the fact that vision is seldom or never materially improved by operation. The loss of binocular vision is prevented if the squint be corrected in time. No operation should be attempted until after the refractive defect shall have been carefully noted and corrected, and prismatic glasses found inadequate for the correction of the squint.*

Hypermetropia unattended with squint, in cases where the refractive defect does not declare itself until adult life, determines a condition that is excessively annoying to the subject, and that until within a comparatively recent period baffled the skill of the entire medical profession. This condition is brought about by the great tension of the ciliary muscle in accommodating the eye to near objects, as in reading, sewing, or the like, which soon tires the eye, and from actual fatigue the tension of the muscle gives way, and near vision becomes not only painful but impossible. A short period of rest restores the temporary loss of the accommodative power, and with it the normal acuity of vision. Any renewal of the continued effort at near vision makes the defect painfully manifest. This affection is called *asthenopia*, and

* This applies to persons possessing binocular vision.

does not as a rule exist in any but far-sighted eyes. Where the hypermetropia is very slight asthenopia may result from spasm of the accommodation, temporarily annulling the power of distant vision, and rendering any continued effort at near vision difficult and painful. Rest soon relieves for a time this trouble also, but it is prone to return all too soon. The only permanent relief *must* come from glasses that entirely neutralize the hypermetropia, the glasses being necessary for near vision only. Some over-enthusiastic young specialists have reported cures of asthenopia from the use of atropia drops. It is almost needless to say that the atropia does no more than temporary good, just what unaided nature does with a few hours' rest.

POLYOPIA MONOCULARIS.

Polyopia due to spasm of the accommodation has long been known, especially in cases of irritation of the motor oculi and trigeminus, following injuries attended with concussion. Von Graefe reports a case resulting from an injury done the cornea by the finger-nail. (Donders, 623.) Other cases have occasionally been reported.

The fact that spasm or paralysis of the obliqui induces diplopia (McKenzie, Wells, Jones, McNamara, J. Z. Laurence) is well established; but so far as I am aware no one has ever observed uniocular polyopia dependent upon disturbance of function in the obliqui, induced by injury, except myself. (American Practitioner, vol. vii, page 140.) The subject was a lad, aged fourteen years, who had, five or six months previous to consulting me, fallen from a cart, receiving severe shock, with loss of consciousness for several hours. When he awoke his vision was very indistinct ("misty") and multiplied, which caused his father to seek my aid. He saw double with the right eye when the left was closed, and multiple with the left eye when the right was closed. With both eyes open his vision was multiple. The case puzzled me very much to account for the diplopia in one eye and

polyopia in the other. He told me that when he looked at the spire of a church two squares distant* he saw about a dozen spires, which he could not count. If he closed the left eye he could count eight; if he closed the right eye he could not see the spire. With the left eye closed a single object within twenty feet appeared double, the images diverging from the horizon upward; with the head turned upon the right shoulder, the left eye closed, the object looked at (a pencil), held upward and to the left within thirty inches, appeared single. He could not tell the exact direction of the pencil, whether vertical, horizontal, or oblique, unless he held it himself. The absence of any intra-ocular lesion, the position of the double images in the right eye, the fact that any attempt at adjustment of the left eye to any point induced pain, with astigmatism of the cornea excluded, impressed me with the notion that spasm of the superior oblique in the right eye gave rise to spasm of accommodation in the left; and the mystery was at least half solved. Being afraid to cut the superior oblique, I conceived the idea of dividing the scleral attachment of the internal rectus, except a single fasciculus at the extreme lower border. I then cut out a triangular portion of the divided tendon, so as to taper it from the undivided fasciculus backward about a quarter of an inch, so as to give this muscle no power above the transverse equatorial line of the eyeball. Muscular contraction taking place in the center of the muscle plane, this must necessarily, I thought, cause the internal rectus to become the antagonist of the superior oblique as a rotary muscle. Upon this hypothesis the operation was done experimentally. To my great surprise, and the infinite gratification of my patient and his friends, the whole difficulty was removed.

It might be well to state that prisms could not be made to improve the vision, the only effect being to double the groups of images with both eyes open. By closing either eye confusion in the longitudinal direction of the images

*About eight hundred and forty feet.

resulted from looking through a prism No. 8 with the refracting angle turned in an oblique direction, this difficulty being less in the right eye.

The operation was done in November, 1869, and there has been no return of the polyopia, though the lad has attended school most of the time since January, 1870. The result is sufficient justification for the operation, and I would not hesitate to repeat it if another case of spasm of the superior oblique, with or without the polyopia, should occur in my practice.

If diplopia result from an affection of the superior or inferior recti, there will be altitudinal separation of the images; if it be due to the external or internal recti, there will be lateral separation; and if double vision result from an affection of both, there will be both lateral and altitudinal separation of the images. But if the obliqui alone produce the diplopia, it may be uniocular, and there will be obliquity in the images, which will appear to start from very nearly a single point, and diverge either upward or downward, according as the superior or inferior oblique is affected. It is important to note whether the diplopia depends upon the presence of binocular vision; for if it be uniocular it could not possibly be due to any defect in the functions of either of the recti. Diplopia dependent upon binocular vision can always be dissipated with prismatic glasses, which is not the case with uniocular diplopia.

CONICAL CORNEA.

The practice of establishing a central or peripheral opening, repeated paracentesis, valvular incision in the apex of the cone, have each had their advocates, and gradually one by one they have passed into oblivion. Many ophthalmic surgeons have regarded conical cornea as an incurable condition. Some cases are reported as having yielded to iridectomy. But to Bader belongs the credit of introducing*

* *Lancet*, January 20, 1872, page 73.

an almost uniformly successful operation for the cure of this often very troublesome affection. The operation consists in the removal of the top of the cone, closing the wound with sutures, and if necessary iridectomy after the healing of the wound. Bader directs* that a small curved needle, armed with silk or silver wire, be thrust through the cornea in its horizontal diameter close to the portion to be removed. Then with a cataract knife or other similar instrument cut out an elliptical portion, including the entire thickness of the cornea. The wound is then closed by tying the suture. Mr. Bader does not say that he has tried the plan of removing the apex of the cone so as to make the opaque line correspond to the transverse meridian, which to my mind is far preferable to the vertical for obvious reasons. The result has been good in most all the cases reported. But certainly I have had less difficulty on account of inflammatory reaction, by removing the elliptical piece of cornea with long diameter horizontal, the sutures lying between the edges of the closed lids. My experience has been limited to two cases, both under twenty years of age. In neither of them was iridectomy necessary. I made the opaque line correspond to the upper half of the pupil. One of my cases read No. 3 (Snellen) at 12'' without glasses, and No. L at 16'. The other read No. 5 (Snellen) at 10'', and No. LXX at 12' with + 30. If the opaque line be made transversely, an iridesis downward will be found preferable to iridectomy done in any direction. If the longitudinal direction of the wound be vertical, and the opaque line pass opposite the center of the pupil, it is almost impossible to get rid of the obstruction to vision. This may seem to some an unimportant matter, but in practice it makes the difference between success and failure in many cases.

The reason why removal of the apex of the cone is always necessary can readily be understood when we take into consideration the fact that at that portion the cornea is always

* *Op. cit.*

found to be abnormally thin and soft, owing to some peculiar change of structure, the exact nature of which is not yet understood.

TATTOOING CORNEAL OPACITIES.

Dr. L. Von Wecker,* of Paris, has put into execution a very ingenious little operation for removing the unsightly appearances of leucomata of the cornea. The operation consists in staining the white corneal specks with Indian ink tattooed into the corneal epithelium with a finely-pointed chisel-shaped knife, such as is used for removing foreign bodies from the cornea. In this way those ugly white and grayish-white corneal opacities are stained deeply black if situated directly in front of the pupil, and an artificial pupil made, so that no one can observe any difference in the color of different portions of the corneal surface. If the speck be situated toward the peripheral portion, the color of the ink may be suited to the color of the iris.

The operation is unattended by any violent irritation, and does not confine the patient to the house. It is generally necessary to operate at six or eight different sittings in order to complete the staining.

This operation is exceedingly popular for its cosmetic effect, as well as in many cases the decided advantage resulting to vision through an artificial pupil, on account of the fact that white opacities, and especially if they are thin, create much confusion on account of their partial translucency.

ULCERATION OF THE CORNEA.

There are many forms of corneal ulcer, and to mention all that has recently been developed respecting the causes, nature, and treatment of each of the several varieties would require so much time that I feel obliged to mention only those forms that require surgical intervention for their relief. That form of corneal ulcer so often seen in persons

* Archives of Ophthalmology and Otology, Vol. ii, No. 2, p. 224.

suffering from frequently-recurring attacks or chronic forms of malarial disease, generally producing deep fissure in the corneal substance or a ragged funnel-shaped excavation, rarely perforates, and as rarely manifests a disposition to heal under any sort of medication. They do sometimes, however, under judicious constitutional and local treatment, appear to fill up almost entirely; but soon they relapse, and are then even more intractable than before, and especially so if the subject suffer any constitutional debility. Lately iridectomy has been practiced in such cases with the most gratifying results. Paracentesis of the anterior chamber frequently repeated is often sufficient in very recent cases; but when the ulcer becomes deep nothing short of iridectomy, with a judicious course of constitutional treatment, will be found sufficient to relieve the disease, of which the ulcer is but a symptom—malnutrition. The local use of atropia drops, applied sufficiently often, and of sufficient strength to maintain full dilatation of the pupil, will be found an invaluable adjunct in the treatment of all cases of corneal ulcer.

In performing iridectomy it is important to enter the anterior chamber through the edge of the cornea and not through the scleral tissue, as it is well known that, should the wound fail to unite by first intention, the iris will at its periphery float into the scleral wound, and contract adhesions that can not be broken up; whereas, if any adhesion take place between the iris and cornea, the ciliary bodies can not become implicated, and the adhesion may, if desirable, be broken up without difficulty.

The clear phagedenic marginal ulcer should be punctured through its base, and if touched with the crayon of sulphate of copper immediately after the puncturing will heal very readily.

The various forms of strumous ulcer generally yield to the constitutional administration of corrosive chloride of mercury, and quinine, iron, etc., along with the local use of atropia drops.

The variolous ulcer always requires paracentesis through its base. Constitutional treatment in these cases seldom or never does good. It is often astonishing how rapidly this class of corneal ulcers heal after being punctured, and how very small the remaining opaque spot. Paracentesis at the periphery of the cornea, when the ulcer occupies a central position, seldom does any good, and is never curative. The practice of applying stimulants, as collyria composed of sulphate of zinc, copper, the nitrate of silver, and in fact all substances having a stimulating effect, can not be too severely condemned, as none of them can do any possible good, and they have been known in many cases to do positive harm.

IRITIS.

Iritis in all forms, no matter how induced, should be treated locally with atropia drops of sufficient strength to produce full dilatation of the pupil, beginning at the very inception of the disease if possible. This is important not only as a prophylactic against the formation of adhesions between the pupillary margin of the iris and capsule of the lens, but as a potent remedy for the relief of the pain, which is often excruciating. Atropia has, I have sometimes thought, the effect of arresting localized inflammatory action, if used before much effusion has taken place. The constitutional treatment, which is important in most all cases, according to my experience, should consist in full doses of iodide of potassium, administered at short intervals, say at least three times a day, gradually augmenting the dose until the toxic effect of the drug is produced. Then increase the interval by giving one dose per day, in order to maintain the effect until the iritis subsides. It will generally be found that the disease partly, if not wholly, subsides before the system becomes saturated with the drug. There are, of course, exceptional cases, requiring other medicines in addition to the above, on account of some constitutional or local affection that may be co-existent with the iritis; or it may be that,

owing to some peculiar idiosyncrasy forbidding the use of the iodide, we are compelled to resort to some other agent. But it should not be overlooked that the iodide of potassium is the all-powerful specific against iritis, as much so, I think, as quinine is in malarial affections. And just here I would mention that some scrofulous persons are prone to attacks of iritis every time they suffer an attack of intermittent; and while I have not found the quinine sufficient to cure the local disease, it is an almost indispensable adjunct in its treatment. I have very recently known three cases of acute iritis that were treated within the first twenty-four hours after the onset to recover in two days under the treatment first described (ten grains of the iodide in water four times a day, and atropia drops, two grains to the ounce of water, dropped into the eyes three times a day.)

In cases of rheumatic iritis an occasional dose of turpentine, a fluid drachm, combined with half an ounce of castor-oil, and fly-blisters to the temples, have proved very useful aids in the cure of the disease. I do not think that I have ever seen any permanent good result from local abstractions of blood in cases of iritis, and of late I never resort to that practice.

Mr. Gascoyne has created an impression in the minds of some medical gentlemen that iritis requires no treatment at all, the disease being, like most other localized acute inflammations, self-limited and tending naturally to recovery. This is one of the most dangerous heresies that I have ever known any one attempt to promulgate; for we all know that unless the disease be arrested it is prone to extend on into the ciliary bodies, and thence to the choroid, setting up changes that are almost necessarily fatal to vision.

SYMPATHETIC OPHTHALMIA.

Recent observations have developed the important fact that nearly all eyes lost from inflammatory changes in the uveal tract do after awhile induce sympathetic irritation,

and finally inflammation in the fellow-eye, unless the unsound eye be removed. Eyes lost from rheumatic, gouty, syphilitic, and all the various forms of traumatic inflammation are about equally dangerous if not removed before the remaining sound eye begins to exhibit signs of irritation.

It has also been found that those eyes that have been only partially destroyed from perforating ulcers of the cornea are liable to set up destructive changes in the fellow-eye. In the last number of the "Royal London Ophthalmic Hospital Reports," vol. vii, page 352, is the report of Mr. Nettleship, Curator to the Hospital Museum, of a very large number of eyes removed on account of sympathetic disease in the fellow-eye, with the clinical history of each case; which, when carefully studied, must convince any one of the fact that all unsound eyes (blind or nearly so from incurable disease) should be at once enucleated. I call attention to this subject on account of the importance of removing at once all blind eyes from persons in whom one sound eye remains, as a prophylactic measure. There are many persons now hopelessly blind in almost every community that might just as well have been spared one sound eye had the one first lost been removed in time.

If the operation be deferred until morbid changes have already been set up in the fellow-eye, we have no assurance of being able to arrest the disease, and even if we do arrest it there is little prospect of restoring the normal acuity of vision; and from a sad experience we know that relapses are prone to occur, so that enucleation before any evidences of secondary disease became manifest is the only means of absolute protection. Mr. George Lawson* says: "The importance of removing at an early period an eye which has been so injured as to be useless, and which is exciting irritation in the other, or the inflamed remnant of a lost eye which is acting in the same prejudicial manner, can not be exaggerated; for, though *in the very early stage* of sympathetic

* Diseases and Injuries of the Eye, p. 130.

ophthalmia, the removal of the cause of irritation will, and generally does, cause its subsidence. Yet when the disease has thoroughly taken hold of the sound eye even the removal of the lost one may fail to arrest its progress."

Then if the eye has been rendered useless by disease or any form of injury, attended with or followed by inflammation of any portion of the uveal tract, experience has taught that soon or late there will be a rekindling of the morbid action, which will almost certainly attack and destroy the other eye. Therefore abscission is not now nearly so often practiced as formerly. The operation of enucleation as now practiced is wonderfully benign, and if done properly does not in the least interfere with the adjustment of an artificial eye, whose mobility will be as perfect as if resting upon a shrunken globe.

There are many other recent advances in ophthalmic surgery that I perhaps ought to mention, but with a due appreciation of the value of your time must content myself with what I have already written.

N. York Medical Record
Wm Wood & Co Publishers
New York City

